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NOV 3 0 2000 (25)

STATION 30

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT 631270

2. To: (Receiving Organization)	3. From: (Originating Organization)	4. Related EDT No.:
SST Projects	Systems Engineering	N/A
5. Proj./Prog./Dept./Div.:	6. Design Authority/Design Agent/Cog. Engr.:	7. Purchase Order No.:
Value/Systems Engineering	M.W. Leonard	N/A
8. Originator Remarks:		9. Equip./Component No.:
This document describes the Systems Engineering processes implemented to define and manage the technical baseline information associated with SST Retrieval projects.		N/A
		10. System/Bldg./Facility:
		SST System
		12. Major Assm. Dwg. No.:
		N/A
11. Receiver Remarks:	11A. Design Baseline Document? ☐ Yes ☒ No	13. Permit/Permit Application No.:
		N/A
		14. Required Response Date:
		N/A

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	RPP-6761		0	Systems Engineering	Q	1	1	
				Implementation Plan for				
				Single-shell Tanks				
				Retrieval Projects				

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D OR N/A (See WHC-CM-3-5, Sec. 12.7)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
(See Approval Designator for required signatures)

(G) Reason	(H) Disp.	(J) Name (K) Signature (L) Date (M) MSIN	(G) Reason	(H) Disp.	(J) Name (K) Signature (L) Date (M) MSIN
		Design Authority	1	1	M.D. Hasty (Chief Eng.) S7-03 11/27/00
		Design Agent	1	1	S.M. O'Toole (SE) R2-36 11/27/00
1	1	Cog. Eng. M.W. Leonard R2-32 11/27/00	1	1	W.T. Thompson (SST Ret. Prog.) S7-90 for 28 Nov 00
1	1	Cog. Mgr. J.E. Ferguson R2-34 11/27/00	1	1	R.P. Wilson (SST Project) S7-98 11/28/00
1	1	QA J.F. Bores R2-87 11/27/00	1	1	K.E. Carpenter (SST Special Proj.) T4-08 11/28/00
		Safety			
		Env.			

18.	19.	20.	21. DOE APPROVAL (if required)
M W Leonard M.W. Leonard 11/27/00 Signature of EDT Originator / Date	R.P. Wilson 11/28/00 Authorized Representative for Receiving Organization / Date	Design Authority/ Cognizant Manager / Date 11/27/00	Ctrl No. _____ ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments

BD-7400-172-2 (10/97)

BD-7400-172-1

DISTRIBUTION SHEET

To	From	Page 1 of 1
Distribution	M.W. Leonard	Date 11/28/00
Project Title/Work Order		EDT No. 631270
Systems Engineering Implementation Plan for Single-shell Tanks Retrieval Projects		ECN No. N/A

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
D.G. Badie	S7-90	X			
J.F. Bores	R2-87	X			
B.E. Brendel	S7-90	X			
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SST Retrieval Project Files	S7-90	X			

RPP-6761
Revision 0

Systems Engineering Implementation Plan for Single-Shell Tanks Retrieval Projects

CH2MHILL
Hanford Group, Inc.
Richland, Washington

Contractor for the U.S. Department of Energy
Office of River Protection under Contract DE-AC06-99RL14047

RPP-6761
Revision 0

Systems Engineering Implementation Plan for Single-Shell Tanks Retrieval Projects

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Date Published
November 2000

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

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Systems Engineering Implementation Plan for Single-Shell Tanks Retrieval Projects

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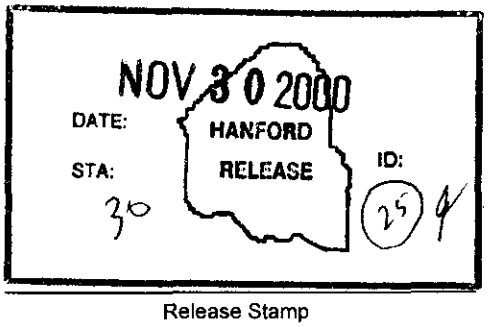
EDT/ECN: 631270 UC:
Cost Center: Charge Code:
B&R Code: Total Pages: 23

Key Words: Systems Engineering, SST, Single-Shell Tanks, Retrieval

Abstract: This document communicates the planned implementation of the Systems Engineering processes and products for the SST retrieval projects as defined in the Systems Engineering Management Plan for the Tank Farm Contractor.



11/29/00
Release Approval Date

Release Stamp

Approved For Public Release

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TABLE OF CONTENTS

FIGURES

TABLES

TERMS

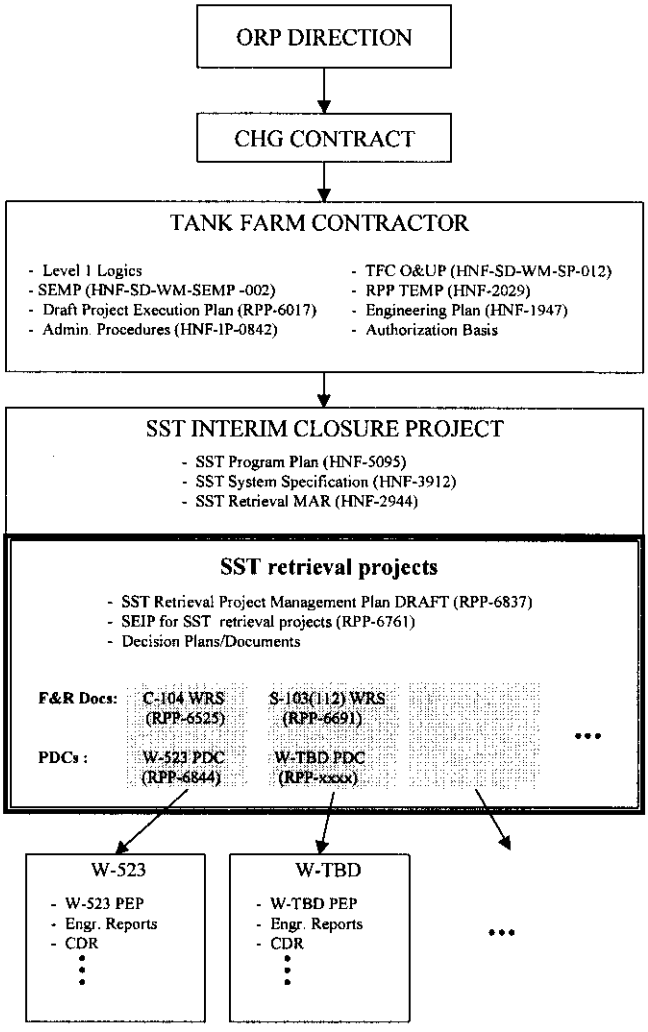
AGA	alternative generation and analysis
F&R	functions and requirements
ICD	interface control document
IRMS	Integrated Requirements Management System
MAR	mission analysis report
PDC	Project Definition Criteria
RAM	reliability, availability, and maintainability
RPP	River Protection Project
SE	systems engineering
SEIP	Systems Engineering Implementation Plan
SEMP	Systems Engineering Management Plan
SSC	structure, system, and component
SST	single-shell tanks
TBD	to be determined
TFC	Tank Farm Contractor

1.0 INTRODUCTION

CH2M HILL Hanford Group, Inc., is implementing Systems Engineering (SE) to define and manage the technical baseline using a graded approach as defined in HNF-SD-WM-SEMP-002, *Systems Engineering Management Plan for the Tank Farm Contractor* (SEMP). The SEMP identifies those products, processes, and procedures to be used by the Tank Farm Contractor (TFC) to accomplish required SE objectives. This SE Implementation Plan (SEIP) documents how single-shell tanks (SST) construction projects associated with the SST waste-retrieval mission (herein referred to as **SST retrieval projects**) will implement the SEMP.

Figure 1-1 is a hierarchy of key documents for SST retrieval projects and shows how this SEIP relates to other key management documents.

Figure 1-1. Key Documents for Single-Shell Tanks retrieval projects.



1.1 SUMMARY

This SEIP will define the specific implementation of the SEMP for SST retrieval projects and associated construction projects using a by-exception approach against the SEMP. Section 2.0 contains a table that identifies each SEMP requirement on a section-by-section basis and identifies whether SST retrieval projects will comply fully or take exception to the requirement. For each identified exception, the table refers to the subsection in Section 3.0 where the exception is described more fully. This SEIP will be updated and revised as necessary to reflect current planning for SST retrieval projects.

To fully understand the SE requirements for SST retrieval projects, it is essential that the user of this SEIP read and understand the SEMP.

1.2 SCOPE AND APPLICABILITY

This SEIP applies to SST retrieval projects activities and associated construction project activities for Phase 1 and Phase 2 SST retrieval up through individual tank isolation (intrusion prevention). This SEIP does not apply to the ongoing Interim Stabilization activities. Construction projects shall incorporate specific SE planning in accordance with this SEIP and document that planning in the projects' Project Execution Plans.

2.0 SYSTEMS ENGINEERING APPLICATION

2.1 COMPLIANCE WITH THE SYSTEMS ENGINEERING MANAGEMENT PLAN FOR THE TANK FARM CONTRACTOR

Table 2-1 breaks down the SEMP by paragraph and identifies where SST retrieval projects will comply or take some exception to the contents of the paragraph. For each identified exception, the table provides a brief description and a reference to the subsection in Section 3.0 where the exception is described in more detail.

Table 2-1. Application of *Systems Engineering Management Plan for the Tank Farm Contractor* to Single-Shell Tanks Retrieval Projects. (4 sheets)

SEMP Paragraph	Application
2.0 Integrated Baseline Management	No requirements.
2.1 River Protection Project Integrated Baseline	Comply with process described except for Specification Development Strategy unique to SST retrieval projects. See Section 3.1 of this SEIP.
2.2 SEMP Implementation	Comply.
2.2.1 Systems Engineering in Subcontracts	Comply.
2.2.2 Systems Engineering Maturity Assessments	SST retrieval projects does not intend to conduct a maturity assessment. SST retrieval projects will contribute and participate as necessary in higher-level assessment activities and conduct internal audits to ensure proper and complete implementation of the systems engineering processes.
2.3 Management of the Integrated Baseline	No requirements.
2.3.1 Configuration Management	Comply.
2.3.2 Interface Management	Comply. Specific implementation is elaborated on in Section 3.3 of this SEIP.

Table 2-1. Application of *Systems Engineering Management Plan for the Tank Farm Contractor* to Single-Shell Tanks Retrieval Projects. (4 sheets)

SEMP Paragraph	Application
2.3.3 Risk Management	Comply.
2.3.4 Decision Management	Comply.
2.3.5 Enabling Assumptions	Comply.
2.3.6 Technical Reviews	SST retrieval projects will participate in higher-level program reviews as discussed in the SEMP, Section 2.3.6.1, as necessary to support the River Protection Project. Construction project-level reviews defined in the SEMP, Section 2.3.6.2, will be implemented by each construction project as directed by the individual project manager. Exceptions to these reviews shall be proposed and justified by the construction project manager on a case-by case-basis.
2.3.7 Technical Performance Measurement	Comply.
3.0 Systems Engineering Processes	Comply.
3.1 Systems Engineering Overview	Comply.
3.2 Systems Engineering Process Application to the Tank Farm Contractor	Comply. The generalized process described in this section assumes a top-down requirements-development process that results in Level 2 specifications written for components or subsystems. SST retrieval projects will depart from that basic process for tanks retrieved for Phase 1 Waste Feed Delivery and instead develop F&R documents covering all aspects of a specific tank retrieval. A further description of this departure is provided in Section 3.1 of this SEIP.
3.2.1 Mission Analysis	This section of the SEMP is focused on higher-level mission analysis. For construction projects mission, refer to Section 2.2 of this SEIP.

Table 2-1. Application of *Systems Engineering Management Plan for the Tank Farm Contractor* to Single-Shell Tanks Retrieval Projects. (4 sheets)

SEMP Paragraph	Application
3.2.2 Functional Analysis	Comply. Functional analysis performed to develop the SST System Level 1 specification and lower level SST retrieval projects requirements documents is found in HNF-2826, *Single-Shell Tank System Functional Analysis*. Additionally, this section of the SEMP refers to functional analysis in the context of Level 2 specification development; see Section 3.1 of this SEIP for a description of the departure from Level 2 specification implementation for SST retrieval projects. Capturing the functional analysis in the IRMS is also discussed in this section of the SEMP. See Section 3.2 of this SEIP for a discussion on SST retrieval projects IRMS implementation.
3.2.3 Requirements Analysis	Comply. For the Level 1 SST System Specification, requirements analysis include HNF-SD-WM-SP-012, Rev. 2, *Tank Farm Contractor Operation and Utilization Plan*, and , HNF-2919, *Constraints for System Specifications for Double-Shell and Single-Shell Tank System*. Requirements analysis shall be performed as necessary for development of lower level specifications. Additionally, this section of the SEMP refers to requirements analysis in the context of Level 2 specification development; see Section 3.1 of this SEIP for a description of the departure from Level 2 specification implementation for SST retrieval projects. Capturing the requirements analysis in IRMS is discussed in this section of the SEMP also. See Section 3.2 of this SEIP for a discussion on SST retrieval projects IRMS implementation.
3.2.4 System Assessments/Evaluations	Comply.
3.2.5 Alternative Analysis and Selection (Synthesis)	Comply.
3.2.6 Specialty Engineering Analysis and Integration	Comply.
3.2.7 Specification Development	Exception as discussed in Section 3.1 of this SEIP.

Table 2-1. Application of *Systems Engineering Management Plan for the Tank Farm Contractor* to Single-Shell Tanks Retrieval Projects. (4 sheets)

SEMP Paragraph	Application
3.3 Construction Project Definition	Comply, except F&R documents will replace the Level 2 specifications as the tool to communicate the requirements baseline to construction projects in Phase 1. Construction projects will begin conceptual design with a Project Definition Criteria for the project scope, an F&R document, and any applicable interface control documents. See SEIP Section 2.2 for additional discussion of project definition documentation. See Section 3.1 of this SEIP for a description of the departure from Level 2 specification planning. Also, see Section 3.3 of this SEIP for Interface Management implementation.
3.4 Design Baseline Development	Comply.
3.5 Physical System Testing and Evaluation	Comply.
3.6 Integrated Logistics Support	Comply.
3.7 Major Technical Documents	Comply. See Section 2.2 of this SEIP.

F&R Functions and Requirements
IRMS Integrated Requirements Management System
SEIP Systems Engineering Implementation Plan
SEMP Systems Engineering Management Plan
SST single-shell tank

HNF-SD-WM-SEMP-002, 2000, *Systems Engineering Management Plan for the Tank Farm Contractor*, Rev. 2, CH2M HILL Hanford Group, Inc., Richland, Washington.

2.2 MAJOR TECHNICAL DOCUMENTS

Section 3.7 of the TFC SEMP includes a table of the major technical documents associated with SE. Table 2-2 of this SEIP reproduces the SEMP table and adds information on SST retrieval projects implementation of each document used in the development of the technical baseline.

Three areas of clarification are required concerning integration between the SEMP and HNF-IP-0842, *RPP Administration*, Volume XIII, "Projects," Section 1.1, "Construction Program" for SST retrieval projects.

- The combination of a Project Definition Criteria (PDC) document and project Functions and Requirements (F&R) document (see the shaded rows of Table 2-2) can

be used to satisfy the 'Mission Need Documentation' called for in HNF-IP-0842, Volume XIII, Section 1.1 (refer to paragraph 6.1.13, Table 1, and Attachment A of that procedure), for the pre-conceptual design phase. Implementing the Critical Decision 1 Prerequisites checklist found in ORP-OPD-PP-02, Critical Decision Process Procedure, can satisfy the reference to "Justification for Mission Need" document in paragraph 6.1.13.1 of HNF-IP-0842, Volume XIII, Section 1.1, in which the PDC and F&R document can be referenced.

- SST retrieval projects will use the F&R document to satisfy the **initial basis for design** prerequisite of the 'Technical Baseline Documentation' called for in HNF-IP-0842, Volume XIII, Section 1.1 (refer to Table 1 and Attachment C of that procedure). The F&R document format was selected for three reasons: (1) to facilitate the flow down of requirements from HNF-3912, *SST System Specification*; (2) to standardize on a format and methodology for developing technical requirements documents for SST retrieval projects; and (3) the chosen format exceeds the required content called out in HNF-IP-0842, Volume XIII, Section 1.1, Attachment C.

  For the **final basis of design** documentation, the F&R document will be updated as necessary and continue to satisfy portions of the Technical Baseline Documentation requirements.

- The updated PDC will be used and referenced from the 'Conceptual Design Document' as called for in the in HNF-IP-0842, Volume XIII, Section 1.1 (refer to Table 1 and Attachment D of that procedure), for project justification and scope information.

Table 2-2. SEMP Technical Documents (5 sheets)

Document	SEMP Reference	**SST Retrieval Projects Implementation**	Purpose/Use	Plan/Procedure
MAR (DOE/ORP-2000-10)	3.2.1	Not applicable. This MAR refers to an RPP-level document.	Establishes the purpose and top-level requirements for a system. It is used as the starting point for systems analysis and other work. The MAR contains RPP data assigned by the site analyses, including major facilities definitions, requirements, functions, and interfaces. There is to be one MAR for the RPP.	Not applicable
O&M concept document	3.2.6	Required as part of preliminary engineering reports/Conceptual Design Report	Summarizes operation and maintenance concept(s). This document supports requirements development, design, and specialty analyses.	HNF-IP-0842, Volume IV, Section 2.15
Requirements analysis reports	3.2.3	Required	Contain the detailed analyses used to derive system requirements. May contain flowsheets, calculations, outputs from computer models, and other data used to derive a specified system requirement. These documents provide requirement traceability and defensibility. HNF-SD-WM-SP-012, *Tank Farm Contractor Operation and Utilization Plan*, which supports Waste Feed Delivery, is an example of a requirements analysis report.	HNF-IP-0842, Volume IV, Section 3.2
System assessment reports	3.2.4	Required	Contain detailed performance analysis and condition assessments of the existing system (or a specific SSC being assessed). Contains calculations, computer model outputs, maintenance record reviews, results of physical inspections/tests, risk assessments, trades, and other data used to substantiate the decision to use existing systems, modify/replace existing systems, or provide new structures, systems, and components (SSCs).	HNF-IP-0842, Volume IV, Section 3.2
AGA reports	3.2.5	Required	Contain detailed analysis of alternative technologies and system configurations, evaluating each against a predetermined set of decision criteria. Contain calculations and system layout relevant to the study, cost analyses, and other types of analyses relevant to the decision criteria selected. May contain recommendations for the preferred solution. This document is used by the decision board to select which technologies and system configurations to develop further.	HNF-IP-0842, Volume IV, Section 3.3
Decision documents	2.3.4, 3.2.3, 3.4	Required	Identify the selected alternative based on an AGA, system assessment, or trade study. Includes rationale for the decisions made.	HNF-IP-0842, Volume IV, Section 2.7

Table 2-2. SEMP Technical Documents (5 sheets)

Document	SEMP Reference	**SST Retrieval Projects Implementation**	Purpose/Use	Plan/Procedure
ICDs	2.3.2 and 3.2.3	Required. See Section 3.3 of this SEIP for further discussion of interface management for SST retrieval projects.	Contain requirements and agreements about specific physical interfaces between SSCs, including major facilities. They repeat values called out in specifications and contain drawing data when mature. (They do NOT specify organizational interfaces.) These documents are used to manage interfaces between items in design and/or with existing SSCs. Parties responsible for providing the interfacing SSCs are held accountable to the requirements in the relevant ICD.	HNF-IP-0842, Volume IV, Section 2.8
Specialty engineering analysis reports	3.2.6	Required	Contain analysis required to convert specialty engineering requirements into design requirements. May contain calculations, outputs from computer models, and other data used to substantiate a specified requirement. These documents provide requirement traceability and defensibility.	None specified
Level 1 specifications	3.2.7	Satisfied by HNF-3912.	Contain system-level requirements for a specific major facility. Requirements include functions, performance levels, time factors, system environments, reliability, availability, and maintenance (RAM), safety, human factors, logistics, and many others. Also contain a requirements verification matrix used to determine the means of system design verification. These documents provide the basis for system assessment and modeling.	HNF-IP-0842, Volume IV, Section 3.2
Level 2 specifications	3.2.7	In Phase 1, SST retrieval projects will produce functions and requirements documents for each tank retrieval activity. See Section 3.1 of this SEIP.	Contain design requirements for a specific subsystem or component. Requirements include functions, performance levels, time factors, system environments, RAM, safety, human factors, logistics, and many others. Also contains a requirements verification matrix that is used to determine the means of system design verification. These documents provide the basis for projects to perform design.	HNF-IP-0842, Volume IV, Section 3.2
Project Definition Criteria document	3.3	A Project Definition Criteria document will be produced for each construction project (see Section 2.2 of this SEIP)	Defines project scope by identifying specific SSCs that the project develops and constructs. It specifies the location and identifies the points of interface for each SSC with adjoining systems.	HNF-IP-0842, Volume IV, Section 2.17

Table 2-2. SEMP Technical Documents (5 sheets)

Document	SEMP Reference	**SST Retrieval Projects Implementation**	Purpose/Use	Plan/Procedure
Core requirements planning matrix	3.3	Required for all construction projects that require operational readiness reviews/ readiness assessments	Identifies and integrates the products necessary to successfully complete operational readiness review.	HNF-IP-0842, Volume 1, Section 1.3
Test and Evaluation Plan	3.5	Required	Documents the project-level testing and evaluation plans including verification methods, locations, management approach, and schedule.	HNF-2029
Master equipment list	3.4 by reference to HNF-1947	Required	Identifies all the SSC equipment items and associated design media.	HNF-1947
Conceptual Design	3.4 by reference to HNF-1947	Required	Establishes construction project scope, schedule, and cost baseline for validation	HNF-1947 and HNF-IP-0842 Volume XIII, Section 1.1
Technical Baseline Document	3.4	Required (see Section 2.2 of this SEIP for further discussion)	Technical alignment between ORP and the TFC regarding project scope, high-level performance and acceptance criteria.	HNF-IP-0842 Volume XIII, Section 1.1
Flowsheets	3.4 by reference to HNF-1947	Required	Provide detailed process flows and technical design basis to guide development of drawings and specifications	HNF-1947
Design drawings	3.4 by reference to HNF-1947	Required	Specify the physical geometry, material, and manufacturing requirements for SSCs. They are used for fabrication and construction of SSCs and their parts.	HNF-1947
Design analysis reports	3.4 by reference to HNF-1947	Required	Document the design calculations and other analyses that were used to arrive at a given design. This document provides traceability of design and may be used to demonstrate analytically how the design complies with the specification.	HNF-1947
Requirements verification reports	3.5 by reference to HNF-2029	Required	Compile into a single source the evidence that a given SSC design complies with the requirements of the associated design specification. Verification method, activities, and results are documented. Often such a report points to series of design analysis reports and test reports to show compliance.	HNF-2029
Test procedures	3.5 by reference to HNF-2029	Required	Document the specific SSC test procedures required to verify SSC suitability at various stages of development. Reference the SEMP, Section 3.5, for the major test categories for which this document is required.	HNF-2029

Table 2-2. SEMP Technical Documents (5 sheets)

Document	SEMP Reference	SST Retrieval Projects Implementation	Purpose/Use	Plan/Procedure
Test reports	3.5 by reference to HNF-2029	Required	Document the results of tests performed for the purposes listed in the SEMP, Section 3.5.	HNF-2029
Interface control drawings	3.2.3, and 3.4 by reference to HNF-1947	Required	Document the physical geometry, materials, manufacturing methods, and other related information for interfaces between SSCs. These drawings are used to document specific design interface agreements between the designers of both sides of the interface.	HNF-1947
Construction specifications	3.4 by reference to HNF-1947	Required	Specify SSC construction requirements (e.g., product delivery, handling and storage, execution of work, types of materials, acceptance criteria, workmanship, documentation requirements). They are used to communicate requirements to a construction contractor.	HNF-1947
Procurement specifications	3.4 by reference to HNF-1947	Required	Specify requirements for procurement of items or services.	HNF-1947
As-built drawings	3.4 by reference to HNF-1947	Required	Specify the physical geometry, material, and other salient information about the installed configuration of SSCs. They are used for management and modification of SSCs and their parts.	HNF-1947
Operations manuals/ procedures	3.4 by reference to HNF-1947	Required	Specify how the system is operated in each of its operational modes and for responding to off-normal conditions.	HNF-1947
Safety equipment list	3.4 by reference to HNF-1947	Required	Identifies specific operations and maintenance SSCs that are designated as important to safety. It is used to manage safety-class equipment and as reference to safety and authorization-basis documents.	HNF-1947 and HNF-IP-0842, Volume IV, Section 5.2
Maintenance manuals/ procedures	3.4 by reference to HNF-1947	Required	Specify specific methods for system calibration, troubleshooting, and maintenance. These documents cover both on-equipment and off-equipment maintenance.	HNF-1947
Training certification	3.4 by reference to HNF-1947	Required	Documents that operators, craftsmen, and technicians have been trained to a minimum level of proficiency in SSC operation and maintenance activities and related skills. Also documents that management, engineers, and other professional staff have been trained and certified as necessary to maintain proficiency in specialized professional areas.	HNF-1947

Table 2-2. SEMP Technical Documents (5 sheets)

Document	SEMP Reference	**SST Retrieval Projects Implementation**	Purpose/Use	Plan/Procedure
Licenses and permits	3.4 by reference to HNF-1947	Required	Establish the agreements with oversight authorities for operating SSCs. SSCs are not operated beyond the requirements of these documents.	HNF-1947
Lessons learned	3.0	Required	Enhance performance and integration by the open exchange of lessons learned from good working practices, cost savings initiatives, and recurrence of negative experiences.	HNF-IP-0842, Volume X, Section 2.3
Authorization Basis documents	3.4 by reference to HNF-1947	Required	The authorization basis describes aspects of facility design basis and operational requirements relied on by DOE to authorize operation.	HNF-IP-0842, Volume IV, Sections 5.4, 5.6, and 5.10

AGA Alternative Generation and Analysis.
DOE U.S. Department of Energy.
ICD Interface Control Document.
MAR Mission Analysis Report.
O&M Operations and Maintenance.
RAM reliability, availability, and maintainability.
RPP River Protection Project.
SEMP Systems Engineering Management Plan.
SSC structure, system, and component.
SST single-shell tank.

HNF-SD-WM-SP-012, 2000, *Tank Farm Contractor Operation and Utilization Plan*, Rev. 2, Numatec Hanford Corporation for CH2M HILL Hanford Group, Inc., Richland, Washington.

HNF-3912, 2000, *System Specification for the Single-Shell Tank System,* Rev. 1, CH2M HILL Hanford Group, Inc., Richland, Washington.

DOE/ORP-2000-10, 2000, *River Protection Project - Mission Analysis Report DRAFT,* U.S. Department of Energy, Office of River Protection, Richland, Washington.

HNF-SD-WM-SEMP-002, 2000, *Systems Engineering Management Plan for the Tank Farm Contractor*, Rev. 2, CH2M HILL Hanford Group, Inc., Richland, Washington.

HNF-1947, 1998, *Tank Waste Remediation System Engineering Plan*, Rev. 0, Lockheed Martin Hanford Corporation for Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-2029, 1999, *River Protection Project Testing and Evaluation Management Plan,* Rev. 1, Lockheed Martin Hanford Corporation for Fluor Daniel Hanford, Inc., Richland, Washington.

3.0 PROJECT-SPECIFIC APPLICATION

This section identifies the specifics of any exceptions in implementation of the SEMP identified in Section 2.0.

3.1 REQUIREMENTS DEVELOPMENT AND SPECIFICATIONS

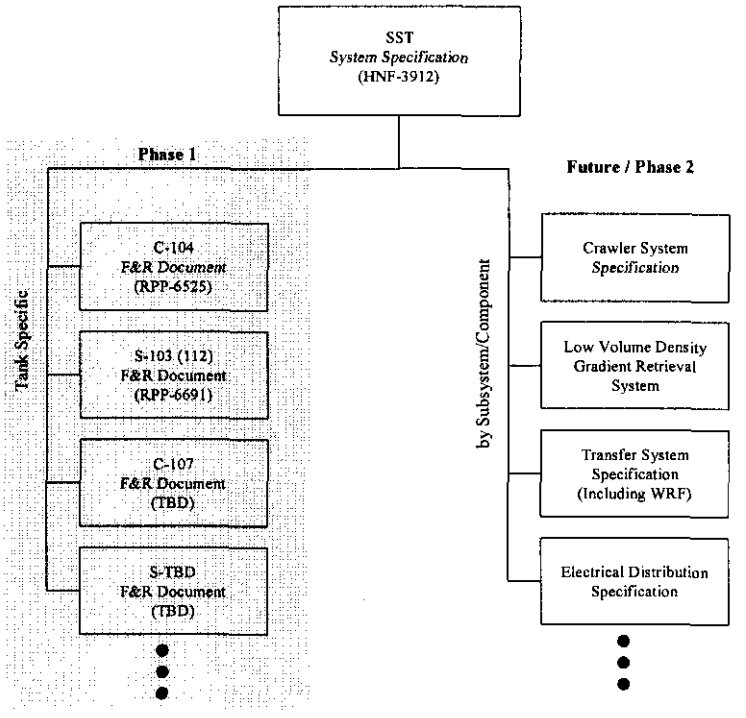
SST retrieval projects is departing from the specification development process envisioned in the SEMP. The concept presented in the SEMP requires Level 1 specifications be written at the major-facility level (i.e., SST System) and that a lower tier of Level 2 specifications be prepared for the major components or subsystems that will be developed for the major facility.

A Level 1 system specification, HNF-3912, *System Specification for the Single-Shell Tank System*, has been produced and released. HNF-3912 contains top-level requirements for the SST System. However, SST retrieval projects has developed or plans to develop specifications that embody the requirements baseline for all structures, systems, and components necessary for a particular tank retrieval in support of Phase 1 Waste Feed Delivery. These specifications are called Functions and Requirements (F&R) documents. SST retrieval projects has chosen this approach because each tank-retrieval activity in support of the Phase 1 Waste Feed Delivery is a unique demonstration of particular retrieval technologies or processes that accomplishes the tank-retrieval objectives. In this phase, there is no economy in writing specifications around generalized components or subsystems because of the small number of tanks retrieved.

At the completion of the demonstration projects in Phase 1, sufficient information will be available to define top-level retrieval requirements for the remaining SSTs and to reach agreement on these requirements with the U.S. Department of Energy and the Washington State Department of Ecology. The system architecture best suited to accomplish the entire SST retrieval mission can then be defined, and specifications will be prepared for common components/subsystems.

Figure 3-1 shows a preliminary specification tree to be employed by SST retrieval projects. Preparation of all specifications, including the F&R documents, will follow the basic SE process defined in the SEMP, Section 3.2.7.

Figure 3-1. Single-Shell Tank retrieval projects Specification Tree.



3.2 INTEGRATED REQUIREMENTS MANAGEMENT SYSTEM IMPLEMENTATION

The Integrated Requirements Management System (IRMS) is a database system being used to capture requirements for the TFC. The SEMP requires the use of IRMS in numerous places to capture requirements. HNF-3912 has already been captured in IRMS. SST retrieval projects will migrate the project F&R documents into IRMS at a later time. The IRMS is scheduled to be fully functional in fiscal year 2001.

3.3 INTERFACE MANAGEMENT

Interface management for SST retrieval projects will follow the basic guidelines and recommendations of HNF-IP-0842, Volume IV, "Engineering," Section 2.8, "Interface Control." Further detailed implementation for SST retrieval projects is provided herein.

SST retrieval projects will participate in the completion and maintenance of the major facility interface control documents (e.g. HNF-3339, *Interface Control Document Between the Double-Shell Tank System and the Single-Shell Tank System*).

For lower level interfaces, SST retrieval projects will initiate an interface control process for interfaces between structures, systems, and components that will ensure a unique

identification and definition of every interface pertaining to the portions of the SST system modified to accomplish the retrieval mission. The basic tenants of this process are as follows:

- SST retrieval projects will develop and maintain a master interface diagram that will identify the interfaces being developed by the SST retrieval construction projects. This drawing will identify each interface with a unique number.

- SST retrieval projects will identify the construction project that will take the lead for each identified interface.

- Starting in the pre-conceptual phase, the lead construction project will prepare an interface scope sheet for each interface in accordance with HNF-IP-0842, Volume IV, Section 2.8, Attachment C. This scope sheet requires approval of project managers on both sides of the interface. The construction project will use these scope sheets as the basis for any interface control documentation required. As new interfaces are identified, the construction project will advise SST retrieval projects to update the master diagram, and a new scope sheet and unique interface number will be created.

- As each interface is designed and developed, the scope sheet shall be kept current and approvals from all parties shall be required for any change. Design review packages shall contain or reference all scope sheets applicable to the project.

- As the designs mature, design drawings that contain a design solution for an interface shall be referenced in the scope sheets. The construction projects shall ensure that the design drawings for their projects are accurate and reflect the agreed-to solution.

4.0 REFERENCES

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